

CLAIMS

1. A method for modifying a plant to produce an antibody or an active fragment or derivative thereof, or a protein functionally equivalent thereto, in a desired cellular compartment comprising introducing into a plant a DNA sequence encoding a heavy chain immunoglobulin or an active fragment or derivative thereof, or a sequence encoding a protein functionally equivalent thereto, said DNA sequence being operably linked to one or more promoters and provided, as appropriate, with an additional sequence encoding a peptide sequence capable of targeting said antibody or fragment or derivative thereof to said desired cellular compartment.
2. A method according to claim 1 wherein the DNA sequence encoding the heavy chain immunoglobulin or fragment or derivative thereof is obtainable from camelids.
3. A method according to claim 1 or claim 2 wherein the plant is selected from tobacco, pea, potato, spinach, tomato or tea.
4. A method according to claim 1 wherein the heavy chain immunoglobulin or active fragment or derivative thereof binds to a protein present in the plant.
5. A method according to claim 1 wherein the heavy chain immunoglobulin or active fragment or derivative thereof binds to a plant or animal pathogen.

6. A method according to claim 1 wherein the heavy chain immunoglobulin or active fragment or derivative thereof binds to a plant hormone or metabolite.
- 5 7. A plant prepared according to the method of claim 1.
8. A modified plant having, in a desired cellular compartment, enhanced levels of heavy chain immunoglobulins or active fragments or derivatives thereof or proteins functionally equivalent thereto compared to equivalent but unmodified plants.
- 10 9. Seeds, fruits, progeny and hybrids of a plant according to claim 7 or 8.
- 15 10. A food product comprising a plant according to claim 7 or 8.
- 20 11. A method for increasing pathogen resistance in a plant comprising introducing into said plant a DNA sequence encoding a heavy chain immunoglobulin which binds to a plant or animal pathogen, or an active fragment or derivative thereof or one or more sequences encoding a protein functionally equivalent thereto, according to the method of claim 1.
- 25 12. A method for modulating plant metabolism comprising introducing into said plant a DNA sequence encoding a heavy chain immunoglobulin which binds to a protein present in said plant or an active fragment or derivative thereof or one or more sequences encoding a protein functionally equivalent thereto according to the method of claim 1.
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13. A method for preparing a heavy chain immunoglobulin or an active fragment or derivative thereof comprising the steps of:

- 5 (i) modifying a plant according to the method of claim 1, and
- (ii) extracting from said modified plant the heavy chain immunoglobulin or active fragment or derivative thereof produced therein.

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